

## **The Impact of Project WILD on Fourth Grade Students**

By Susan C. Gilchrist

### **Project WILD Program**

Project WILD (Wildlife in Learning Design) is a supplementary environmental education program designed to develop awareness, knowledge, skills, and commitment concerning wildlife and the environment. Since its inception through the Western Association of Fish and Wildlife Agencies and the Western Regional Environmental Education Council in 1983, Project WILD has been adopted by all 50 states plus 5 other countries. In Wisconsin, the Department of Natural Resources (DNR) and the Department of Public Instruction (DPI) sponsor the program.

Project WILD consists of guidebooks with educational activities that can be infused into kindergarten through twelfth grade curricula in all major subject areas. The activity guides are distributed to educators who attend a six-hour workshop. Between 1985 and 1992, approximately 15,000 educators attended Project WILD workshops in Wisconsin.

### **Study Design**

In 1987 a survey of teacher use of Project WILD in Wisconsin was conducted (Zosel 1989). In 1989, this survey was followed by an evaluation that examined the effects of Project WILD on students in Wisconsin. This study began with three questions:

1. Do students exposed to Project WILD know more about selected wildlife concepts than students who were not exposed to Project WILD?

2. Do students exposed to Project WILD know more about wildlife-related concepts than the same students did before exposure to Project WILD?
3. In what ways do students learn about wildlife and the environment?

Twenty-four fourth grade teachers were recruited for the study, half from schools in rural communities, half in urban. Half the teachers had been trained in using Project WILD and employed some of the activities, while half had not.

Survey questionnaires were developed with oversight from an advisory committee consisting of DNR staff from participating bureaus and an elementary school teacher. After the instruments were field tested and refined, DNR staff administered surveys to students in 24 classes. We surveyed the students and teachers at the beginning (fall) and end (spring) of the 1989-90 school year. To prevent the teachers from teaching the answers to the survey questions, we did not share the student survey with them. To examine factors outside the classroom that might influence student learning about wildlife and the environment, we sent a survey to the students' parents.

Qualitative data were collected as observation notes, interview notes and transcripts, and photographs. In 16 of the classes we interviewed students and teachers and conducted classroom observations.

## Data Analysis

Student surveys measured knowledge related to seven key concepts: adaptation, habitat, food chains, carrying capacity, human impact, definition of wildlife, and interdependence. Statistical analyses included  $t$ -tests, paired  $t$ -tests, and analysis of variance. Using the class as the unit of comparison, concept scores were compared between WILD and non-WILD students and between fall and spring. Students who did not complete both fall and spring surveys were excluded from statistical analyses. To measure learning, the percentage of students who answered a question incorrectly in the fall but correctly in the spring was calculated for each class.

Parent surveys examined student exposure to learning about wildlife and the environment outside of school. Questions focused on the frequency of reading books and magazines on wildlife; watching nature shows on TV; visiting museums, wildlife areas, or zoos; and whether a household member hunts, fishes, or traps. We examined parent characteristics, including age, occupation, income level, and marital status, using a chi-square test for differences between parents of students in WILD and non-WILD classes. The sample consisted of 454 parent surveys. A multivariate regression analysis was used to control for parental

and other factors while testing the effect of exposure to Project WILD on student survey performance.

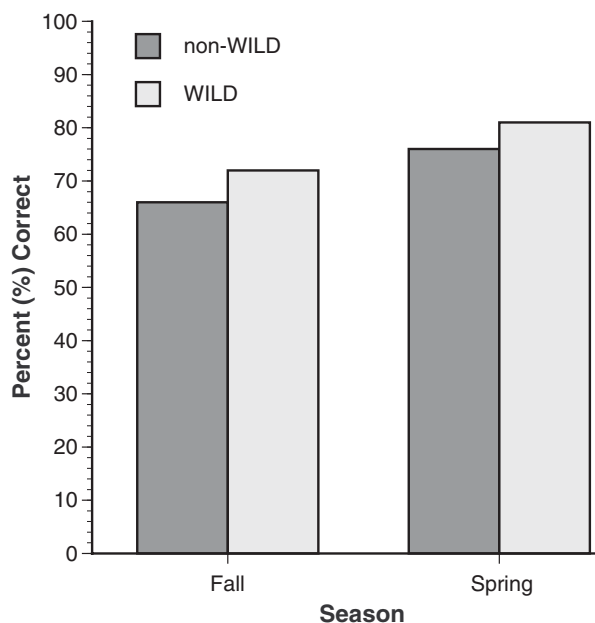
## Results

### Students exposed to Project WILD know more about selected wildlife concepts than students who were not exposed to Project WILD.

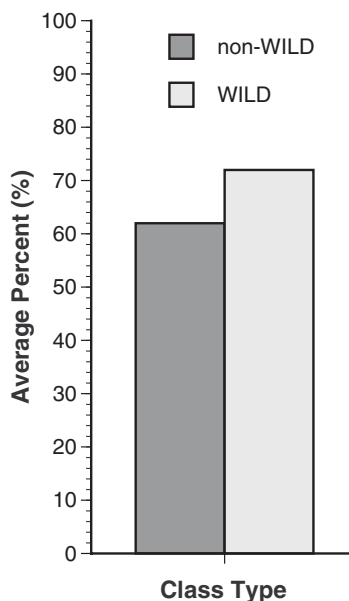
Student survey scores were generally higher for WILD classes than for non-WILD classes, in both the fall and spring (Fig. 1). Scores were significantly higher ( $P \leq 0.05$ ) for WILD classes in four concepts: carrying capacity, definition of wildlife, food chains, and interdependence.

### Students exposed to Project WILD know more about wildlife-related concepts than they did before exposure to Project WILD.

Spring student survey scores were significantly higher ( $P \leq 0.05$ ) than the fall scores in all seven concepts for the non-WILD as well as the WILD classes, indicating that learning about wildlife was occurring. We found a significantly higher percentage of students who learned concepts in WILD classes than non-WILD, indicating that, although they started out knowing more, they also learned more wildlife-related concepts during the school year (Fig. 2).



**Figure 1.** WILD classes scored higher than non-WILD classes. All class scores were higher in the spring than in the fall.



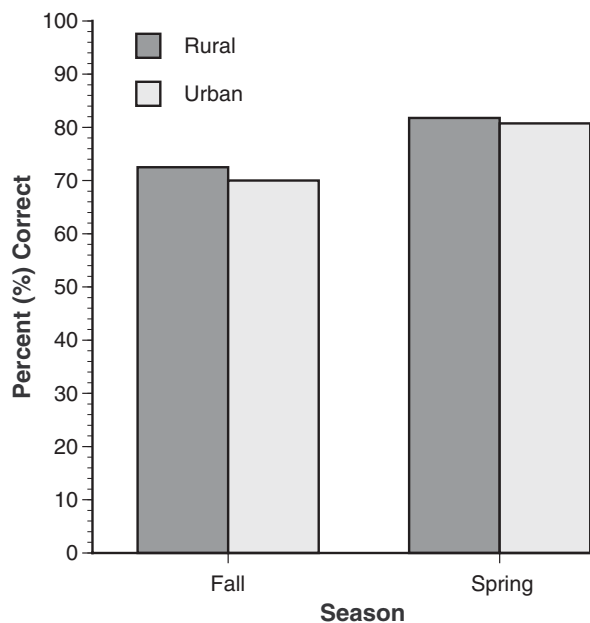
**Figure 2.** When student learning was measured by survey questions that students answered wrong in the fall and right in the spring, a higher percent of learning occurred in WILD classes.

**There are many factors that influence student learning about wildlife and the environment, including school activities, parent interest, and reading books and magazines related to wildlife.**

High fall survey scores and student interviews throughout the year indicated that students had experienced some learning about wildlife-related concepts prior to fourth grade. When we asked students how they had learned about wildlife, they often referred to previous school experiences or described some personal experience with wildlife outside of school, sometimes with parents.

When we asked students which school activity related to wildlife in the past year had been the most interesting, students in WILD classes most frequently described a WILD activity.

Through surveys, students, parents, and teachers all identify school activities as an important source of learning about wildlife and the environment. No significant relationship was found between student survey scores and the amount of wildlife-related television watching reported by parents. Parent interest in learning about wildlife has a significant positive bearing on student survey scores, as does more reading of wildlife-related materials.



**Figure 3.** *In WILD classes, urban student scores increased significantly.*

**Some differences exist in urban and rural learning about wildlife.**

Using the geographic community type to define urban or rural schools, we found that rural classes generally scored higher than urban classes and demonstrated more learning from fall to spring. Using parent survey responses to define urban- or rural-dwelling students, we found that survey scores of individual urban-dwelling students in WILD classes increased significantly more than those of rural-dwelling students in WILD classes (Fig. 3). Students in rural schools may know more about wildlife, but exposure to Project WILD is a significant factor for urban-dwelling students.

Observations support these statistical results. Students in urban, inner-city schools were more likely to define “wild” animals as animals that are “dangerous.” This indicates a need for basic education regarding wildlife in urban schools.

**Teacher interest in wildlife and wildlife education is another influence on student learning about wildlife.**

Upon our first visit to the classrooms, we noted that WILD-trained teachers generally exhibited more wildlife-related items, such as books, posters, beehives, rocks, plants, shells, taxidermy specimens, and aquaria. In the fall survey, WILD teachers reported slightly more training related to wildlife and the environment due to the WILD workshop. Previous research indicates that attending a WILD workshop enhances teacher interest in wildlife and environmental education (Zosel 1989). Teacher interest may affect student exposure to wildlife-related topics even in the very beginning of the school year. Perhaps higher teacher interest in wildlife education positively affected the fall WILD student scores, even before student exposure to Project WILD.

Teachers, students, and parents affirmed an interest in wildlife education, and teachers and students exposed to Project WILD indicated that they really liked the activities. Why then did these WILD-trained teachers only use an average of seven activities over the school year? On their survey, teachers indicated they need more training, background materials, and planning time in order to incorporate more environmental and wildlife education into their curricula. Natural resource agencies can't give teachers

more planning time, but by providing training and background information, we can reduce the need for planning time, and thereby facilitate infusion of environmental education.

### Recommendations

Project WILD is an effective education tool and the workshops seem to exert a positive influence on the teachers, thus their students. The DNR should continue to make Project WILD available through workshops. In addition, the department should develop and provide more training and background information for educators.

Wildlife education efforts should focus on urban audiences because their educational need is greater and because Project WILD can make a significant difference in their knowledge of wildlife. With populations concentrated in urban areas, it is important that urban voters comprehend the needs of wildlife so they can support conservation and wise management of our natural resources.

### References

Gilchrist, Susan. The Effects of Project WILD on Fourth Grade Students in Wisconsin: Results of a Statewide Study, 1989-90. Wisconsin Department of Natural Resources. Technical Bulletin. 1998.

Zosel, Dolly. Factors Affecting Teacher Use of Project WILD. Wisconsin Department of Natural Resources. Research Management Findings. No.19. February 1989.

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